1. How do analysis objects differ from design-level objects?

Analysis objects represent the users' resources and the design objects represent software.

2. Transitions and decisions in activity diagrams map to

Conditional logic in a method.

3. What additional change is required when you partition the data access layer of your architecture?

You must provide an interface between the middle tier and all of the data partitions.

4. Activities in activity diagrams map most closely to

An event triggered by a use case., An operation of a class

5. What is the purpose of the domain model?

To define the resources of the problem domain.

6. The purpose of the interaction diagram is to

Discover and define the communication between objects.

7. What are the different roles in the MVC pattern?

The model represents the interaction of the components in a design. The view is a way to represent the access to the analysis objects. The controller element coordinates the access to the data.

8. If an object does not own the parameters it uses in an operation, then where do you look?

In the class diagram for a class that should own the data.

9. What two elements of a class are required in your model to manage the state of an object?

One or more attributes that describe the condition of the object and corresponding operations to maintain the attribute values.

10. In UML an activity describes

A process and/or test

11. How do you change the model to improve cohesion and coupling when an object appears to have too much responsibility?

Reassign responsibilities to an existing class or split the class into two or more classes with a narrower purpose.

12. How would you identify possible state changes in an object using a sequence diagram?

Look for events coming into the object's timeline. Incoming events require a response that can cause a change in the object.

13. What features of a statechart diagram map to operations or operation implementations in the class diagram?

Events, actions, and activities map to operations or operation implementation logic.

14. What is the definition of coupling?

To measure the dependency between objects.

15. Why is it important to identify scenarios for each use case?

To define the test cases for the system.

16. A scenario is

A single logical path through a use case.

17. How does encapsulation impact the quality of your architecture?

Encapsulation ensures that each component can function properly without knowing the internal design of the other components.

18. Scenarios can be identified in an activity diagram by

Following the triggers from one activity to the next until you reach a stop or return.

19. What is the purpose of the architectural analysis phase?

To partition the use cases into logic groupings based on the technology best suited to support them

20. When you define the events in the sequence diagram, you have to draw the event from a sending object to a receiving object. What do you do if there is no direct association between the classes that these objects belong to?

Add an association between the two corresponding classes so that the two objects can communicate directly.

21. What is the purpose of an interface partition in a layered architecture?

The interface identifies the specific protocol that the tier above needs to use to access the tier below., The interface provides data marshalling, mapping, and routing between tiers.

22. Consider the following nonfunctional requirements and determine which of them can be verified and which cannot.

“The number of mouse clicks the user needs to perform when navigating to any window of the system’s user interface must be less than 10.” → Yes,

“The user interface must be user-friendly and easy to use.” → No,

“In case of failure, the system must be easy to recover and must suffer a minimum loss of important data.” → No,

“The maximum latency from the moment the user clicks a hyperlink in a web page until the rendering of the new web page starts is 1 second over a broadband connection.” → Yes,

“The user interface of the new system must be simple enough so that any user can use it with minimum training.” → No

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24. How does the principle of high cohesion affect architectural partitioning?

High cohesion helps reduce partition complexity by assigning only one very focused responsibility to each partition.

25. What elements make up the description of an association?

An association line, multiplicity, name and/or roles, and optionally constraints.

26. The purpose of the <<extend>> stereotype is to identify

Conditional delegation between use cases.

27. What resources are used for functional partitioning during architectural analysis?

The use case model, class diagram, and interaction diagrams.